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# Objective Measures of IADL Kitchen Safety of Individuals with Cognitive and Visual Impairments

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# Objective Measures of IADL Kitchen Safety of Individuals with Cognitive and Visual Impairments

Kylie Townsley & Marisa Gonzalez

**Case Study:** 72 year old woman fell donning pants, acquiring a moderate traumatic brain injury (TBI), scoring 9 on the Glasgow Coma Scale (GCS). Symptoms include confusion, headaches, memory loss, and fatigue. Comorbidities include age-related macular degeneration. She is in acute rehabilitation to be evaluated on her ability to complete kitchen tasks independently to determine her discharge plan.

## 1 Ask: Research Question

What assessments provide objective measures regarding instrumental activities of daily living (IADL) kitchen safety for individuals with cognitive and visual impairments?

## 2a Acquire: Search Terms

**Databases:** ProQuest, Google Scholar, Clinical Key, PubMed, UBA Website

**Search Terms:** occupational therapy (OT), kitchen, cognition, visual deficit, safety, kitchen safety, IADL evaluation, safety assessment, kitchen assessment, brain injury, kitchen tasks

## 2b Acquire: Selected Articles

**Bottari, Dassa, Rainville, & Dutil (2010):** 1 random facet, 2 random facets, 1 fixed facet, and 3 random facets design. Determined the generalizability of the IADL Profile when administered with individuals who have moderate or severe traumatic TBI.

**Schwartz, Segal, Veramonti, Ferraro, & Buxbaum (2002):** Correlational research design. Compared evaluations for clients with TBI, left cerebrovascular accident (LCVA), right cerebrovascular accident (RCVA), and control group, of the Naturalistic Action Test (NAT) to the Functional Independence Measure (FIM) and an attention battery. The study aimed to establish the NAT's reliability and validity.

**Snow, Warren, & Yuen (2018):** Cross-sectional survey research design. Evaluated construct validity of the Revised Self-Report Assessment of Functional Visual Performance (R-SRAFPV), compared to the Snellen Chart and Mars Letter Contrast Sensitivity Chart for older adults with low vision due to age-related eye disease.

## 3a Appraise: Study Quality

**Bottari et al. (2010):** Level III,  $n = 28$ ; clients with moderate to severe TBI, determined by the GCS. Post hoc power analysis completed, found power of 0.95. Data collection occurred during single, 3-hour session. IADL Profile scores rated by 4 trained OT's, with 1-month interval between ratings. There was a large age range (16-65 years), scoring was not blinded, and administration of the IADL Profile was conducted in a non-controlled environment.

**Schwartz et al. (2002):** Level III,  $n = 128$ ; predetermined groups of TBI ( $n = 25$ ), LCVA ( $n = 30$ ), RCVA ( $n = 45$ ), and control ( $n = 28$ ). CVA diagnosis was confirmed via CT, MRI, or clinical presentation. Group sample sizes were uneven between diagnoses, FIM scores retrieved from client records. Predictive validity testing completed 6-months post discharge; inadequate sample at follow up ( $n = 46$ ) and for attention battery analysis ( $n = 56$ ).

**Snow et al. (2018):** Level III,  $n = 87$ ; participants were 60+ years old and diagnosed with an age-related eye disease. Limited group sample size. Verbal administration by 4 trained OT's. N/A responses were coded as great difficulty influencing lower composite scores. Known-group comparison used to support evidence of construct validity. Low vision rehabilitation for participants followed the study.



Figure 1: Elderly woman cooking on stove top. Lexington Medical Center Extended Care Skilled Nursing Facility. (2019). *Rehabilitation*. Retrieved from <https://www.lexingtonextendedcare.com/rehabilitation>

## 3b Appraise: Study Results

**Bottari et al. (2010):** All six factor scores demonstrated generalizability, with factor scores above .70, and 75% of those factors scores were above .90, showing excellent generalizability. Random-facet analysis showed that 2.3% of variance in total scores was due to subject-rater-occasion and subject-rater interactions. Variance in total score was predominantly due to differences among subjects.

**Schwartz et al. (2002):** There is sufficient inter-rater reliability (98% agreement), internal consistency ( $\alpha = .79$ ), concurrent criterion validity ( $p < .001$ ), and construct validity ( $p < .05$ ) for this assessment. Analysis suggests significant predictive validity ( $r = .58$ ); further research is necessary due to attrition. Adequate content and face validity, due to scores not significantly affected by controls ( $p < .001$ ). There is significant correlation between the attention battery and LCVA ( $p < .001$ ), RCVA ( $p < .001$ ), and TBI ( $p < .05$ ). However, the strongest correlation is between the attention battery and LCVA.

**Snow et al. (2018):** Final version of the R-SRAFPV removed 7 items due to factor loading ( $>.4$ ). The instrument's components had excellent internal consistency ( $\alpha = .92$ ). Mean composite scores showed no statistically significant differences between each subscale, meaning subscale scores were significantly correlated ( $p < 0.05$ ). Participants with normal-mild acuity scored higher than participants with moderate-profound acuity impairments ( $p = .03$ ,  $d = .54$ ). Participants with normal-mild contrast sensitivity scored higher than participants with moderate-profound contrast sensitivity ( $p = .04$ ,  $d = .44$ ). Both known group comparisons demonstrated medium effect size.

## 4 Apply: Conclusions for Practice

Review of the literature supports the use of the R-SRAFPV as an objective measure to assess kitchen IADL tasks for individuals with low vision. The literature also supports the use of the IADL profile and the NAT as objective measures to assess kitchen IADL tasks for individuals with cognitive impairments. Each assessment is shown to be reliable and valid.

## References:

- Bottari, C., Dassa, C., Rainville, C., & Dutil, É. (2010). A generalizability study of the Instrumental Activities of Daily Living Profile. *Archives of Physical Medicine and Rehabilitation*, 91(5), 734-742. doi: 10.1016/j.apmr.2009.12.023
- Schwartz, M. F., Segal, M., Veramonti, T., Ferraro, M., & Buxbaum, L. J. (2002). The Naturalistic Action Test: A standardised assessment for everyday action impairment. *Neuropsychological Rehabilitation*, 12(4), 311-339. doi: 10.1080/09602010244000084
- Snow, M., Warren, M., & Yuen, H. K. (2018). Revised Self-Report Assessment of Functional Visual Performance (R-SRAFPV)—Part II: Construct validation. *American Journal of Occupational Therapy*, 72(5), 7205205020p1-7205205020p8. doi: 10.5014/ajot.2018.030205

The R-SRAFPV, IADL Profile, and NAT have been shown to be appropriate objective measures when evaluating ability to complete IADL kitchen tasks for individuals with cognitive or visual impairments.

